

REMARKS

The Applicants respectfully request reconsideration of this application in view of the above amendments and the following remarks.

Rejection Under 35 U.S.C. § 112, First Paragraph

The Examiner has rejected claims 1-6, 11-26 and 30-31 under 35 U.S.C. § 112, first paragraph, as based on a disclosure, which is not enabling. Applicants respectfully disagree that the disclosure is not enabling.

(1) The Examiner has commented that *“with respect to applicant's disclosure, paragraph [0053] where applicant teaches that the hydrogen output production from the Decom supplies .5 to 1 Nm³/h, when converting this number, especially on the low end of the range, the amount of hydrogen supplied would power a toy like a match box car, but certainly would not sufficiently power a scooter, moped, motorcycle, or a 2 or 4 cycle engine. Therefore, applicant has satisfied the requirement of "utility" and that the cassette will produce hydrogen, but has not enabled direct hydrogen fuel output to a fuel-consuming device which would provide a system approved for transportation by a government transportation organization as nonhazardous material or a hydrogen powered vehicle, except if it were a toy”*.

Applicant believes that the Examiner apparently mistook the “N” in Nm³/h to be “nano” instead of “normal”. For clarity, paragraph [0053] has been amended to make it clear that Nm³/h refers to normal meters cubed per hour, not nano meters cubed per hour. This abbreviation is well known in the art, as evidenced on page 1 of the article “STANDARD CONDITIONS FOR TEMPERATURE AND PRESSURE”, which is submitted in the Information Disclosure Statement (IDS) filed herewith.

(2) The Examiner has commented that *“applicant has no dimension to the cassette except that each cassette is configured to hold approximately 28 KW of releasable hydrogen energy. It is unclear how the energy in watts converts to the size, i.e., dimension of the cassette, applicant has taught how much energy from the hydrogen is released however there is insufficient data to use this information in making the cassette there is no dimension of the cassette so no volume can be attained, and there is no mention of how much core material is contained within the cassette and therefore there are too many unknown variables in order to make the cassette as claimed”*.

Applicant respectfully disagrees. Paragraph [0046] discusses that in several embodiments of the invention a cassette may hold approximately 28 KW of releasable hydrogen energy in various forms of core material. This may be readily translated to an amount of hydrogen storage material using representative hydrogen storage capacities of various different types of hydrogen storage materials. These storage capacities are well known in the art. This is evidenced, at least, by Table 2 on page 48 of the Masters Thesis of Tero Hottinen entitled “TECHNICAL REVIEW AND ECONOMIC ASPECTS OF HYDROGEN STORAGE TECHNOLOGIES”, which is submitted in an IDS filed herewith. Using such well-known hydrogen capacities available in the literature, the amount of hydrogen storage material and the size of the cassette may be readily determined by those skilled in the art for various different hydrogen storage materials.

Furthermore, paragraph [0055] discusses that a small system in one embodiment is a combined Decom and cassette holder with mini-fuel cell that can be worn on the belt and has a common DC adapter to power cell phones, pocket pc's, etc. Accordingly, an approximate size suitable for powering a cell phone or pocket pc is given in the application. Still further, FIG. 2 shows a size of a cassette 220 relative to a Decom unit 210, which appears to be of similar size and shape as a tower of a personal computer. These give approximate sizes of cassettes according to various embodiments.

(3) The Examiner has commented that *“applicant has not described what mud like slurries will produce hydrogen except applicant recites water reactive slurries”*.

Slurries of the type discussed in the patent application were known in the art at the time the patent application was filed. This is evidenced, at least, by the article entitled “HYDROGEN TRANSMISSION/STORAGE WITH METAL HYDRIDE-ORGANIC SLURRY AND ADVANCED CHEMICAL HYDRIDE/HYDROGEN FOR PEMFC VEHICLES”, by Andrew W. McClaine et al., which is submitted in an IDS filed herewith. There is also a discussion of such slurries in the above-identified masters thesis, and references identified therein.

(4) The Examiner has commented that *“Applicant has recited the broad term of "core materials" which can read on materials, which have been neither contemplated nor disclosed. Applicant teaches on Page 19, paragraph [0049], that carbon nanotubes, carbon fullerenes, glass microspheres can be used as "core" materials, applicant has not taught how that would be constructed and arranged in the cassette, and what other means within the cassette are required in releasing the hydrogen so that the hydrogen can be used”*.

Applicants respectfully submit that the scope of the invention is not limited to any known way in which the materials are arranged in the cassette. The patent application discloses various different ways in which material may be removed from the cassettes so that hydrogen may be recovered from it in the Decom or hydrogen recovery system. FIGS. 3-4 and associated description disclose how core material may be included and released from a cassette in one embodiment. FIGS. 5A-F show how core materials may be included in and released from cassettes in various embodiments. FIGS. 11A-B show how core materials may be included in and released from cassettes in another embodiment. Other embodiments are also disclosed in the patent application.

(5) The Examiner has commented that *“In claiming the hydrogen storage and recovery apparatus applicant has not taught components critical or essential to the practice of the invention, but not included in the claim(s) is not enabled by the disclosure. See In re Mayhew, 527 F.2d 1229,188 USPQ 356 (CCPA 1976). For example, in the specification applicant teaches massively catalyzed water and sodium hydride or other water reactant as the core material, a mud-like slurry which can flow through tubing inside the decom, solid alloy which is specially compounded metal hydride alloy, pre-sliced alloy. There specification lacks adequate description in order to adequately teach one having ordinary skill in the art what alloys are applicable and operable. Not all alloys will produce hydrogen, the recitations are unduly broad”*.

Applicant respectfully submits that is clear in the patent application that the term “alloy” was shorthand for a metal hydride or other art recognized hydrogen storing alloy. However, in order to comply with the Examiner’s requirement, Applicants propose amending paragraph [0047] in order to make this abundantly more clear. Examiner is requested to confirm that this and other amendments proposed herein do not introduce new matter.

Accordingly, Applicant respectfully submits that the rejections should be withdrawn. Again, Applicant also respectfully requests that the Examiner carefully review the amendments to the detailed description to confirm Applicant’s understanding that no new matter has been added.

Rejection Under 35 U.S.C. § 112, Second Paragraph

The Examiner has rejected claims 1-6, 11-26, and 30-31 under 35 U.S.C. § 112, second paragraph.

Without admitting the appropriateness of the rejection, Applicants respectfully submit that these claims have been cancelled. Therefore the rejection is believed to be moot. Applicants respectfully submit that the new claims comply with the requirements of 35 U.S.C. § 112, second paragraph.

35 U.S.C. §102(e) Rejection - Kravitz

The Examiner has rejected claims 1, 2, 6, 12, 25 and 30 under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,746,496 issued to Kravitz et al. (hereinafter referred to as "Kravitz").

Without admitting the appropriateness of the rejection, Applicants respectfully submit that these claims have been cancelled. Therefore the rejection is believed to be moot. Applicants respectfully submit that the new claims are not anticipated by Kravitz.

35 U.S.C. §102(b) Rejection - Gamo

The Examiner has rejected claims 1, 2, 6, 11, 12, 13, 20, 21, 25, 26 and 30 under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,976,725 issued to Gamo et al. (hereinafter referred to as "Gamo").

Without admitting the appropriateness of the rejection, Applicants respectfully submit that these claims have been cancelled. Therefore the rejection is believed to be moot. Applicants respectfully submit that the new claims are not anticipated by Gamo.

35 U.S.C. §102(b) Rejection - Goldstein

The Examiner has rejected claims 1, 2, 5, 11, 12 and 15 under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,411,815 issued to Goldstein (hereinafter referred to as "Goldstein").

Without admitting the appropriateness of the rejection, Applicants respectfully submit that these claims have been cancelled. Therefore the rejection is believed to be moot. Applicants respectfully submit that the new claims are not anticipated by Goldstein.

Double Patenting

The Examiner has provisionally rejected claims 1-6, 11-26, 30 and 31 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-20 and 28-30 of copending U.S. Patent Application No. 10/099,274.

Applicant will consider filing a Terminal Disclaimer to address this provisional rejection at a later date.

The Examiner has provisionally rejected claims 1-6, 11-26, 30 and 31 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-27, 33-34 and 51 of copending U.S. Patent Application No. 10/241,125.

Applicant will consider filing a Terminal Disclaimer to address this provisional rejection at a later date.



Conclusion

In view of the foregoing, it is believed that all claims now pending patentably define the subject invention over the prior art of record and are in condition for allowance. Applicants respectfully request that the rejections be withdrawn and the claims be allowed at the earliest possible date.

Request For Telephone Interview

The Examiner is invited to call Brent E. Vecchia at (303) 740-1980 if there remains any issue with allowance of the case.

Request For An Extension Of Time

The Applicants respectfully petition for an extension of time to respond to the outstanding Office Action pursuant to 37 C.F.R. § 1.136(a) should one be necessary. Please charge our Deposit Account No. 02-2666 to cover the necessary fee under 37 C.F.R. § 1.17 for such an extension.

Charge Our Deposit Account

Please charge any shortage to our Deposit Account No. 02-2666.

Respectfully submitted,

BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP

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